Experience of Care: Short Acting Opiate Reduction Program at Evans Army Hospital

Introduction

In September 2010, our Evans Army Community Hospital undertook a healthcare innovation initiative to advance outcomes, decrease adverse events, and reduce inappropriate prescribing for patients using Short Acting Opioid (SAO) therapy greater than 90 days, for chronic noncancer pain. The compelling correlation of SAO usage and the results of independent and retrospective Root Cause Analyses (RCA) for suicide ideations in 2009 and 2010 provided the inspiration and motivation to undertake such an important and clinically relevant innovation in our institution. Initial implementation took place in April 2011 at our Warrior Transition Battalion with eventual targets of transitioning the program throughout all our primary care clinics. Objectives included: 1) Calculate and standardize SAO usage to milligrams of Morphine/patient/day for comparison over time; 2) Trend and improve measured functionality of the patient; 3) Measure the number of patients no longer needing SAOs; 4) Reduce ED visits, outside pain consults, and inpatient admissions; and 5) Monitor and trend Sole Provider Program (SPP) violations. Within the existing Patient Centered Medical Home model, we applied the clinical guidelines for use in chronic opioid therapy of non-cancer pain patients, and revised and customized the DOD/VA Treatment Algorithm for Pain. Using retrospective analysis of patient prescription records, we solicited and analyzed data from the DOD Pharmacoeconomics Center (PEC) database. We also introduced the Oswestry functional tool that trended the patient's ability to manage pain in everyday life. We reduced patient SAO use in half with no appreciable increase in ED visits, inpatient admits, outside consults, or SPP violations. Using evidence based clinical practice guidelines and developing a clear treatment plan and exit strategy, our team focused on building a program that reduced, controlled, and prevented SAO dependency for Warriors in Transition, Soldiers, and Family Members.

Methods

Evans leadership resourced an Advisory Team of subject matter experts to oversee the development and standardization of a clear treatment plan and exit strategy across our MEDDAC to reduce, control, and prevent SAO dependency for Warriors in Transition, Soldiers, and Family Members. Initially started in the WTB, the project is currently being implemented in our primary care clinics. This team consisted of the Chief of Pharmacy Services, several Clinical Pharmacists, PCMs, NCMs, Lab Officer, Psychiatry, ASAP director, Pain Management Providers, Social Work Services, Patient Advocacy, and Performance Improvement. Leadership further championed implementation through periodic reviews at monthly meetings of the Executive Committee of the Medical Staff and the Performance Improvement Committees.

Within the framework of the Patient Centered Medical Home model, we applied clinical guidelines for use in chronic opioid therapy of noncancer pain patients and customized the DOD/VA Pain Treatment Algorithm for our primary care clinics. Other components of this innovation include the revised Screener and Opioid Assessment for Pain Patients (SOAPP-R®) that quantified patients' vulnerability for SAO dependency into a high or low risk number; the Oswestry Disability Questionnaire (ODQ®) to measure and trend functionality of the patient; and an amended sole prescriber agreement and informed consent. (The team chose the ODQ tool because it delineated a greater insight into the patient's pain that is not available using the customary zero-to-ten-pain-scale.) In collaboration with our Laboratory Services, the team developed an enhanced urine drug-monitoring panel, evaluating both qualitative and quantitative results for 14 substances. Panel orders and results are integrated through CHCS and available to PCMs within two to five days. The team also created a Pain School educational program with two learning tracks: the first instructed our PCMs, NCMs, and clinical support staff and the second educated patients and family members.

To further standardization, we merged the PCM and NCM treatment flow process portrayed in **Figure 1** below with our Treatment Algorithm for Pain starting on Pages 10-13 below. Providers use the algorithm as a patient road map to communicate and manage treatment expectations and projected outcomes for patients by highlighting the path the patient is currently undertaking and stressing the perils of non-compliance. Five exit points exist where the patient may depart the program. For most patients, there is only one successful exit and that occurs in Block 42 on Page 5 of Chart 1. Patients who have contraindications (Block 8 on Page 1 of Chart 1), those not accepting opioid therapy (Block 15 on Page 2 of Chart 1), those entering Suboxone treatment (Block 28 on Page 4 of Chart 1), and those not medically or psychiatrically suitable for opioid therapy due to addiction treatment (Block 56 on Page 7 of Chart 1 – below the red line)

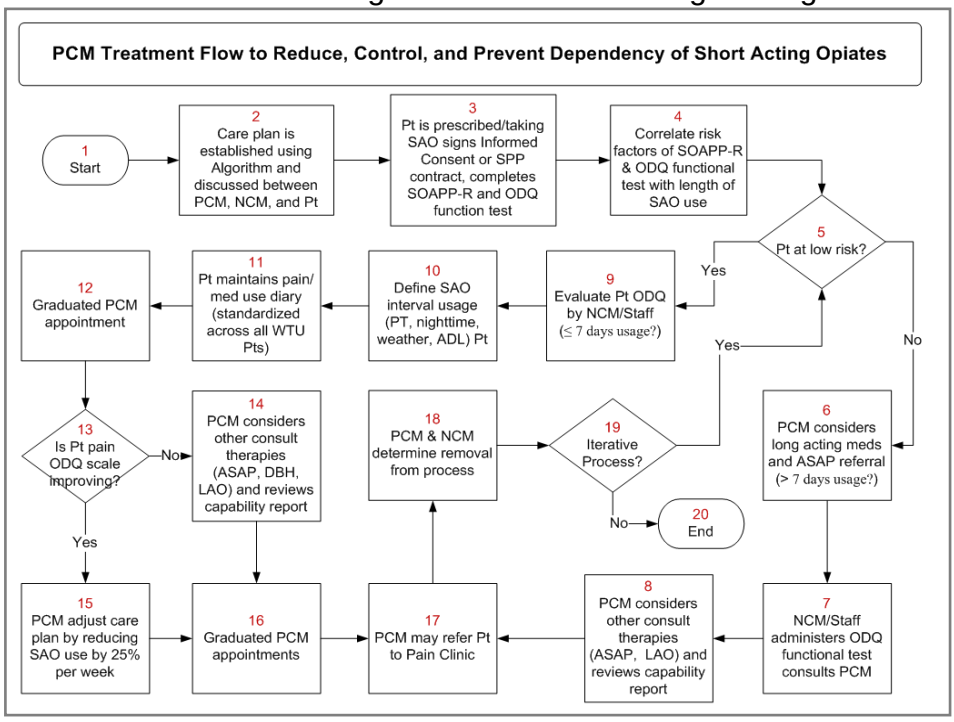


Figure 1: Treatment Flow

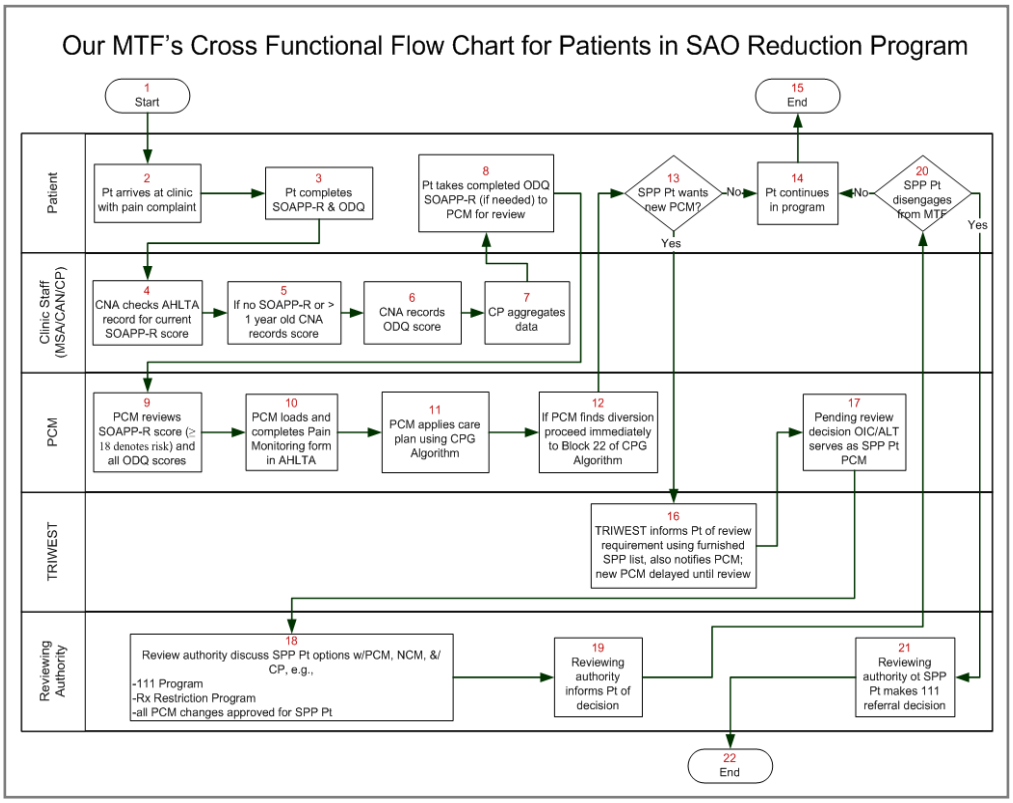


Figure 2: Cross-Functional Flow Chart

exit the Treatment Algorithm. We developed a cross-functional flow chart **Figure 2** to assist staff and patients in identifying and delineating responsibilities for completion of key critical steps in the program. We also included an oversight path for those recalcitrant patients seeking other PCMs.

We reviewed patient prescription data from the DOD PEC and included patients prescribed only SAO medications for chronic use (greater than 90 days – **Figure 3**). We excluded any records containing long acting opioids (LAO) prescribed during that 90-day period. To understand the order of magnitude, prescriptive data was reviewed over a 90-day time period between November 2010 and February 2011. Patients met selection criteria if dispensed either a 90-day supply of SAOs or any quantity of a SAO in the three consecutive months. We then aggregated each patient's SAO

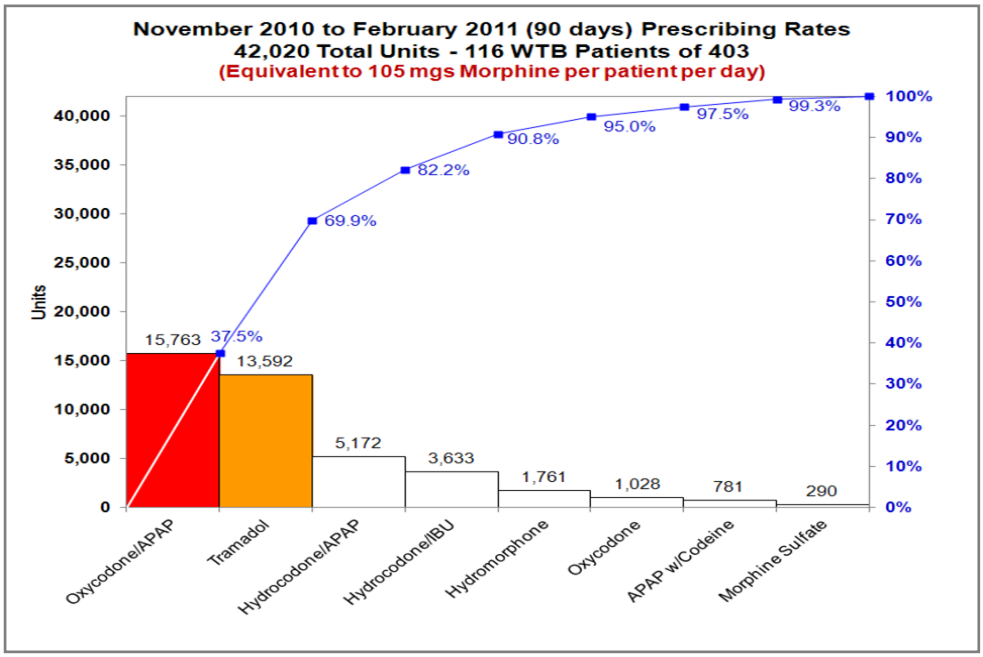


Figure 3: WTB Pareto Chart

usage and converted the SAO medications to corresponding Morphine equivalents, using standard equianalgesic tables (**Table 1**). At the next PCM encounter, each identified patient was administered the SOAPP-R and ODQ questionnaires by the clinical staff.

Equianalgesic Opioid Dosing[1]

Drug	Equianalgesic Oral Dose (mg)	Morphine Conversion Factor (CF)
Morphine	30	1
Codeine	200	0.15
Hydrocodone	30	1
Hydromorphone	7.5	4
Meperidine	300	0.1
Oxycodone	20	1.5
Oxymorphone	10	3
Tramadol	120	0.25
Tapentadol[2]	see footnote 2	

[1] McPherson, Mary Lynn M. (2000). Demystifying Opioid Conversion Calculations: A Guide for Effective Dosing . Bethesda, MD: American Society of Health-System Pharmacists, Inc.. p. 5.

[2] No published data exists to clearly guide converting between tapentadol and other opioids. However, noninferiority trials suggest the following therapeutic interchange:

Tapentadol 50mg → oxycodone 5mg --> Morphine 7.5mg
Tapentadol 75mg → oxycodone 10mg --> Morphine 15mg
Tapentadol 100mg → oxycodone 15mg --> Morphine 22.5mg

Calculating Average mg Morphine/Patient/Day

Opioid 1: (example)			
[Total # of dispensed units] **X**	[Strength (mg)] **=**	[Total mg Opioid1]	
[Total mg Opioid1] **X**	[Morphine Equianalgesic CF] **=**	[mg Morph Opioid1]	
Σ {[mg Morph Opioid1] + [mg Morph Opioid2] + ... + [mg Morph Opioid n]} **÷**	[# unique patients for each opioid agent] **÷**	[# of days in time period] **=**	[Total mg Morph/Pt/Day]

Table 1: Equianalgesic Opioid Dosing

Each patient's SOAPP-R score was applied to aid the PCM in developing an individualized plan in accordance with the Treatment Algorithm, (Block A on Page 1 of Chart 1). Any patient arriving at the clinic with a pain complaint was also administered the questionnaires. By establishing our initial patient population, we continuously trended any patient or group of patients' functional progress using succeeding ODQs while quantifying medication usage. We also created a simplified Pain Monitoring Note for PCMs and NCMs to use in AHLTA.

Results

Using the DOD PEC database, we identified WTB patients, subject to the parameters previously discussed, and recorded their SAOs. We then converted individual SAOs to milligrams of Morphine using the Equianalgesic Opioid Dosing process in **Table 1** and aggregated the results to find the average milligrams of Morphine consumed per patient per day. Plotting each SAO onto a Pareto Chart also reflected the leading pain medications prescribed (**Figure 3**). The 105 milligrams Morphine/patient/day as identified in the Pareto Chart was alarming because according to a study published in the Journal of the American Medical Association, an increased incidence of accidental overdose was identified in patients taking opioids at doses greater than 100 milligrams of Morphine equivalents per day. These patients were six to eight times more likely to overdose than those taking 20 milligrams of Morphine equivalents per day. It is not hard to achieve this dosage, for example, taking twelve five-milligram Percocet tablets per day for break-though pain is equivalent to 90 milligrams of Morphine/Day. If patients are on any other SAO, we could readily see how easy it was to exceed the 100-milligram threshold especially if the default SIG in CHCS for Percocet was 12 per day. (We immediately changed the default SIG to six.) By presenting the WTB PCMs with their patients' consumption habits coupled with their own prescribing practices, we instantly validated the requirement for this innovation calling for an immediate change in prescribing behavior.

All baseline ODQ scores were completed in August 2011, like scores averaged, and the Chart in **Figure 4** constructed. To further the analysis, we added both September and October 2011 ODQ averages. We acquired the first-time expected functional pain score proposed at the ODQ web site, depicted by the blue horizontal line, and observed it was much higher than the actual scores observed. The September and October monthly ODQ averages reflected little to no changes in five ODQ questions (1, 2, 5, 7, & 10) while the remaining questions (3, 4, 6, 8, & 9)

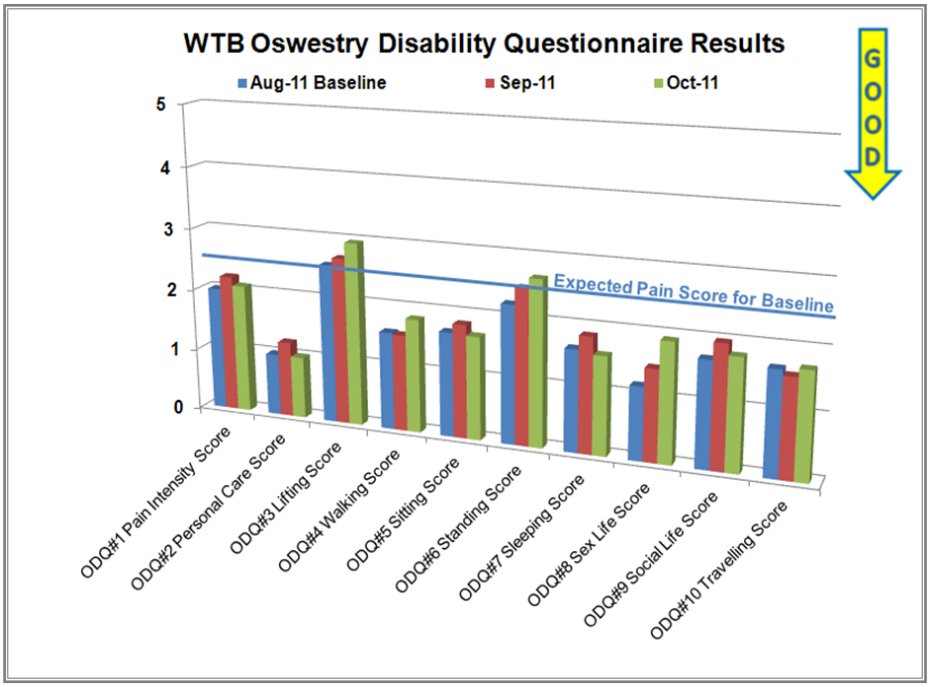


Figure 4: WTB ODQ Results

experienced only slight increases corresponding to higher pain. Together, these two observations might explain that patients may have maximized their SAO benefit. Moreover, because the act of healing is an extensive process, subsequent ODQs over time will be essential for fuller assessment of the patient's progress. In Block B on Page 1 of Chart 1, we introduced the concept of Complementary Alternative Medicines (CAMs). The DOD review previously discussed stressed that CAMs may be more successful in treating the patient's pain, when offered concurrently with analgesics. Other than the conventional therapies available in most MTFs (PT & OT), transition to alternate therapies is a challenge to providers as their accessibility in the local market becomes available. Nevertheless, we are committed to locating these therapies and making them available for the patient.

We then segmented the patient population into low and high-risk categories based upon their SOAPP-R scores (high-risk ≥ 18 & low-risk < 18) using the DOD PEC database and the same parameters previously discussed, compared the milligrams of Morphine/Pt/Day from January through April 2011 to May through August 2011. Our Treatment Plan in **Chart 1** (Pages 10-13 below) prescribes a framework that tolerates the use of SAO but at the same time, advocates an all-encompassing approach with a judicious use of opioids. Therefore, we expected to distinguish a reduction in the overall milligrams of Morphine/Pt/Day and were not disappointed. **Figure 5** illustrates a clear reduction in milligrams of Morphine usage that the t-Test in **Table 2** confirmed to be statistically significant, (both means were indeed different). Reductions in provider prescribing practices as an integral factor of the overall Treatment Plan framework of this innovation proved to be instrumental in lowering the patient's opioid consumption. It will take more time to evaluate the role CAMs also played in this reduction. Since collection of the initial data shown in

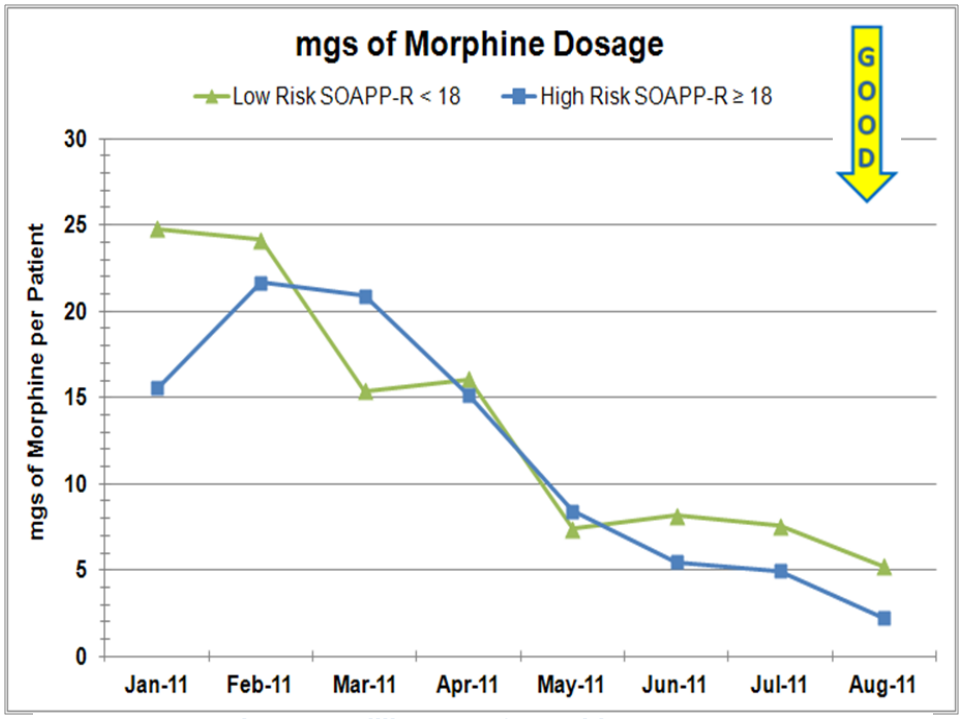


Figure 5: Milligrams of Morphine Dosage

Figure 3, 67 of the 116 (58-percent) Soldiers have transitioned from SAOs to another form of treatment. We have not observed any significant pain visits to the ED or any SPP violations.

Results of Paired t-test for Means

t-Test: Paired Two Sample for Means	α = 0.05	
Low SOAPP-R Scores (< 18)	Jan-Apr 2011	May-Aug 2011
Mean	20.096875	7.075
Variance	758.2374116	360.4849057
Observations	160	160
Pearson Correlation	0.173719716	
Hypothesized Mean Difference	0	
df	159	
t Stat	5.381	
P(T<=t) one-tail	0.000	Reject Null Hypothesis because p < 0.05
T Critical one-tail	1.654	
P(T<=t) two-tail	0.000	Reject Null Hypothesis because p < 0.05
T Critical Two-tail	1.975	

t-Test: Paired Two Sample for Means	α = 0.05	
High SOAPP-R Scores (≥ 18)	Jan-Apr 2011	May-Aug 2011
Mean	18.31395349	5.26744186
Variance	329.9593363	105.4719162
Observations	172	172
Pearson Correlation	-0.01051532	
Hypothesized Mean Difference	0	
df	171	
t Stat	8.163	
P(T<=t) one-tail	0.000	Reject Null Hypothesis because p < 0.05
T Critical one-tail	1.654	
P(T<=t) two-tail	0.000	Reject Null Hypothesis because p < 0.05
T Critical Two-tail	1.974	

Jan-Apr 2011 & May-Aug 2011 for Low & High data Tested Normal under the Anderson-Darling Method to Analyze Normality

Table 2: t-Test of Means

Conclusion

The processes developed, improved, and implemented in this innovation directly accounted for the transformation in the data observed and the objectives met. However, we also realized the need to gain control over those patients using SAOs as well as those about to undergo SAO therapy. These factors led us to adopt a **culture of prevention** in the SAO program. Meeting the objectives meant developing tools and instructing PCMs, NCMs, clinical staff, and patients on what they mean and how they need to be used. This was by far our greatest success in the WTB. Integrating these developments and making adjustments when necessary permitted us to achieve the very modest success described in the latter part of the results. Converting SAOs to milligrams of Morphine coupled with the use of the ODQ data created a common language that allowed the providers to achieve the remaining goals. The framework of an integrated Treatment Algorithm made it possible for providers to use the common language on a level playing field to better treat their patients. The fact that the Command “had their backs” did not impair their efforts either. Sustainment and transference are intrinsically linked and integrated by our goals and objectives. We

unveiled the program and modest results to non-WTB PCMs at the August 2011 all-provider meeting. The interest was immense. Many team members received queries as to when they were scheduled for implementation. By thinking big, starting small, and acting fast we have gained the initiative. Therefore, just as was done in the WTB, and prior to any growth, we illustrated an order of magnitude of SAO usage in their activity. We selected our biggest primary care clinic for implementation figuring that it had the most variance to offer; we were not disappointed. Again, using the DOD PEC database and the same parameters previously developed, we identified primary care patients and recorded SAO usage and then converted it to milligrams of Morphine. Plotting each SAO onto a Pareto Chart again identified the leading prescribed pain medications (**Figure 6**). However, this analysis introduced the civilian patient dimension. As displayed in **Figure 7** family member SAO prescriptions are almost 40-percent higher than the respective empanelled Soldier population. Initial baseline ODQ scores (**Figure 8)** continue to be acquired and reveal very similar baseline scores to **Figure 4**. Furthermore, we have found Evans' patients to be just as responsive to treatment as the WTB Soldiers, still, there are a few with drug-seeking behavior, hence the basis for developing and including an oversight process in **Figure 2**. Once we discover all of the variations inherent in this clinic, we will deploy the program (almost simultaneously) to

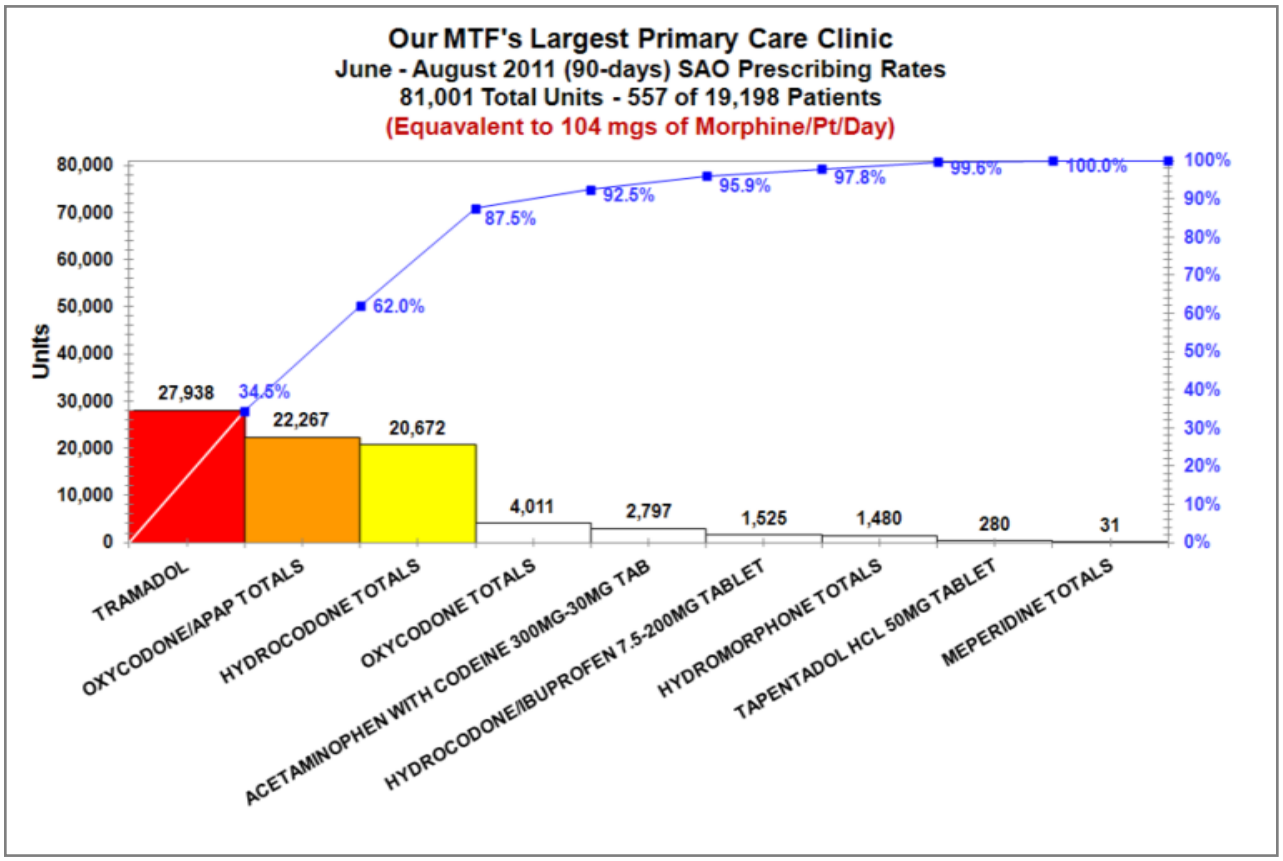


Figure 6: Evans Family Medicine Clinic Pareto Chart

the remaining Primary Care clinics. The point taken here is once we build and implement this program it becomes readily transferable and particularly sustainable. This translates into a capability for any Military Treatment Facility to adopt, implement, and advance. Thus, we continue to confirm that small changes in practices will have life-size impacts on patients taking SAOs.

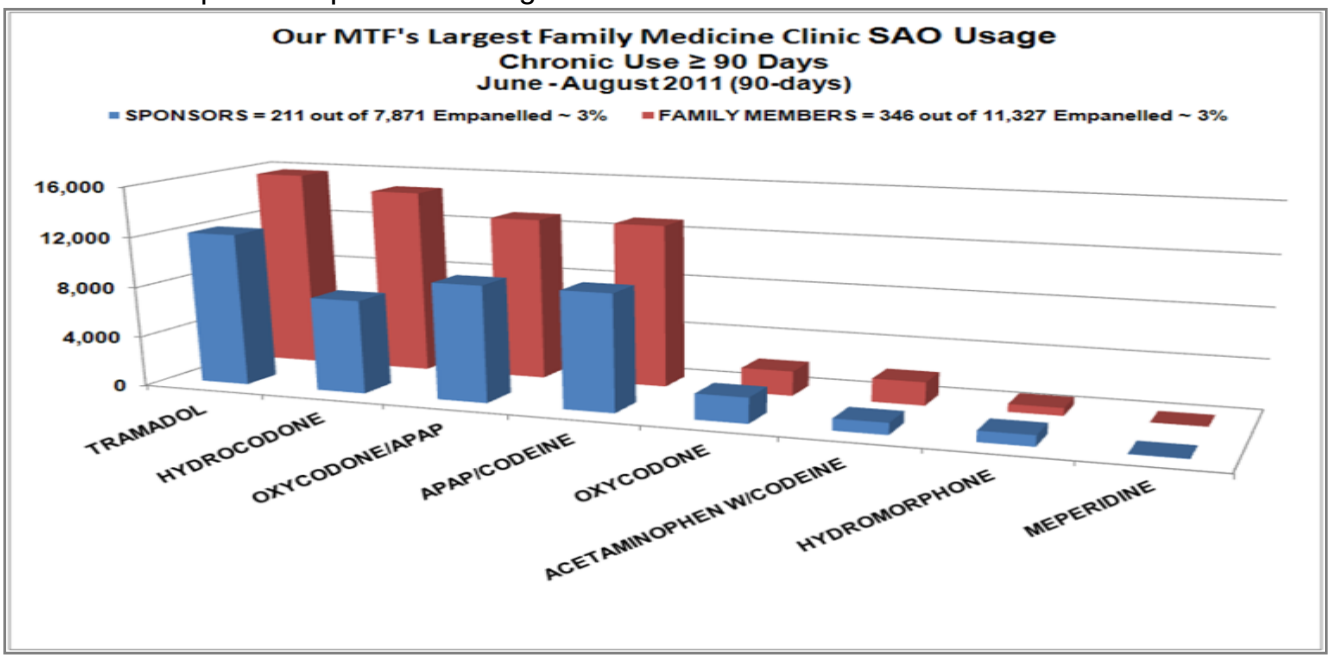


Figure 7: Evans Family Medicine Clinic Sponsors to Family Member Comparison

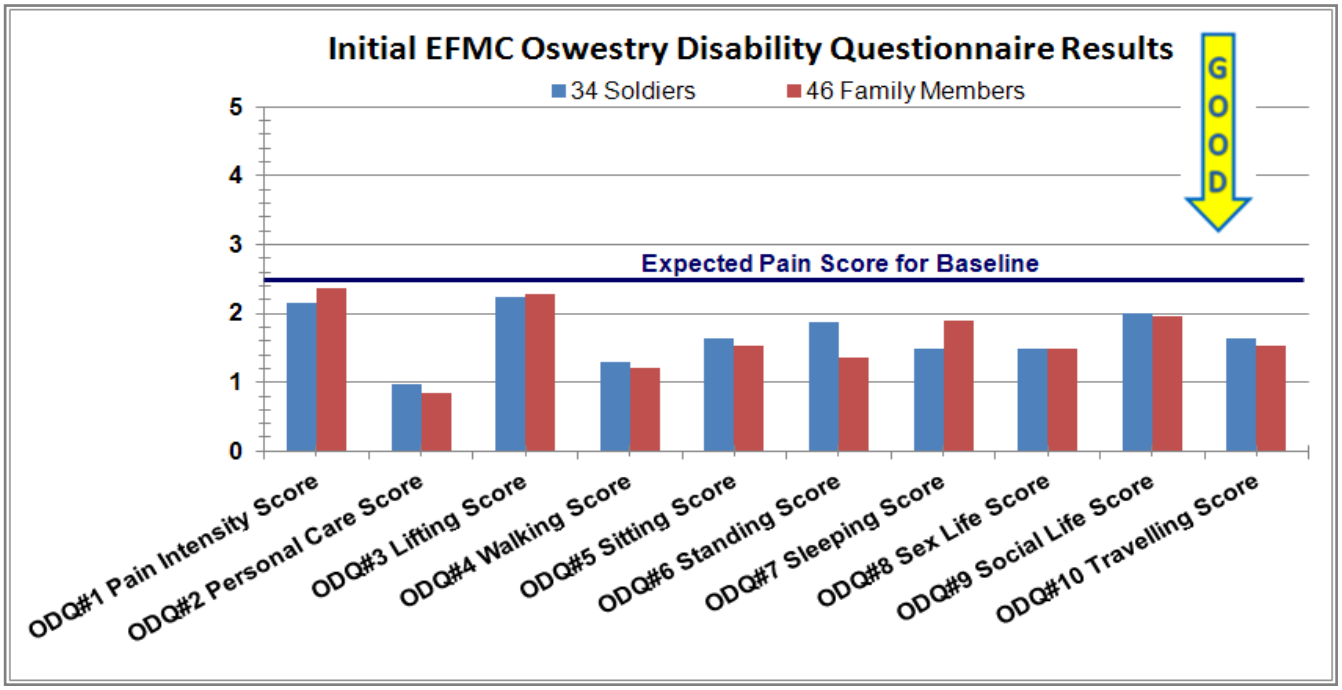
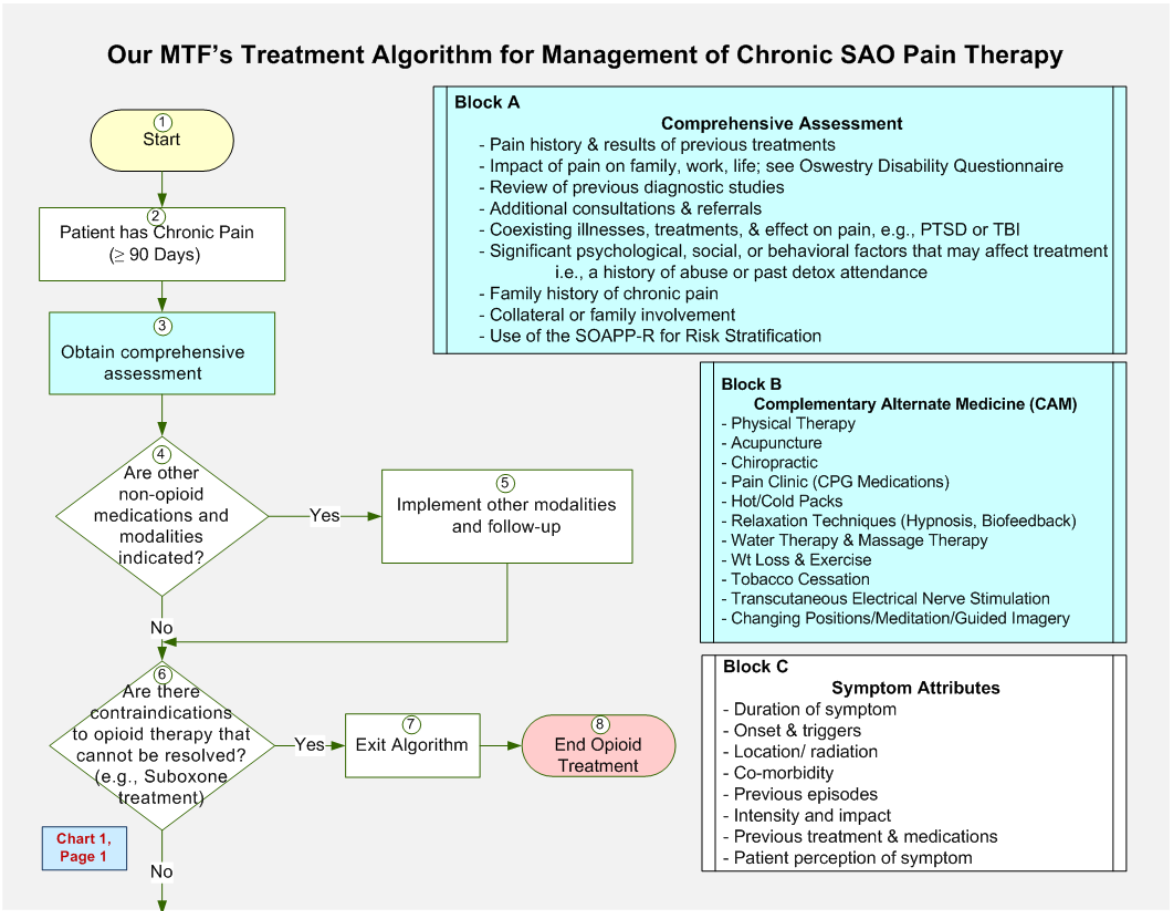
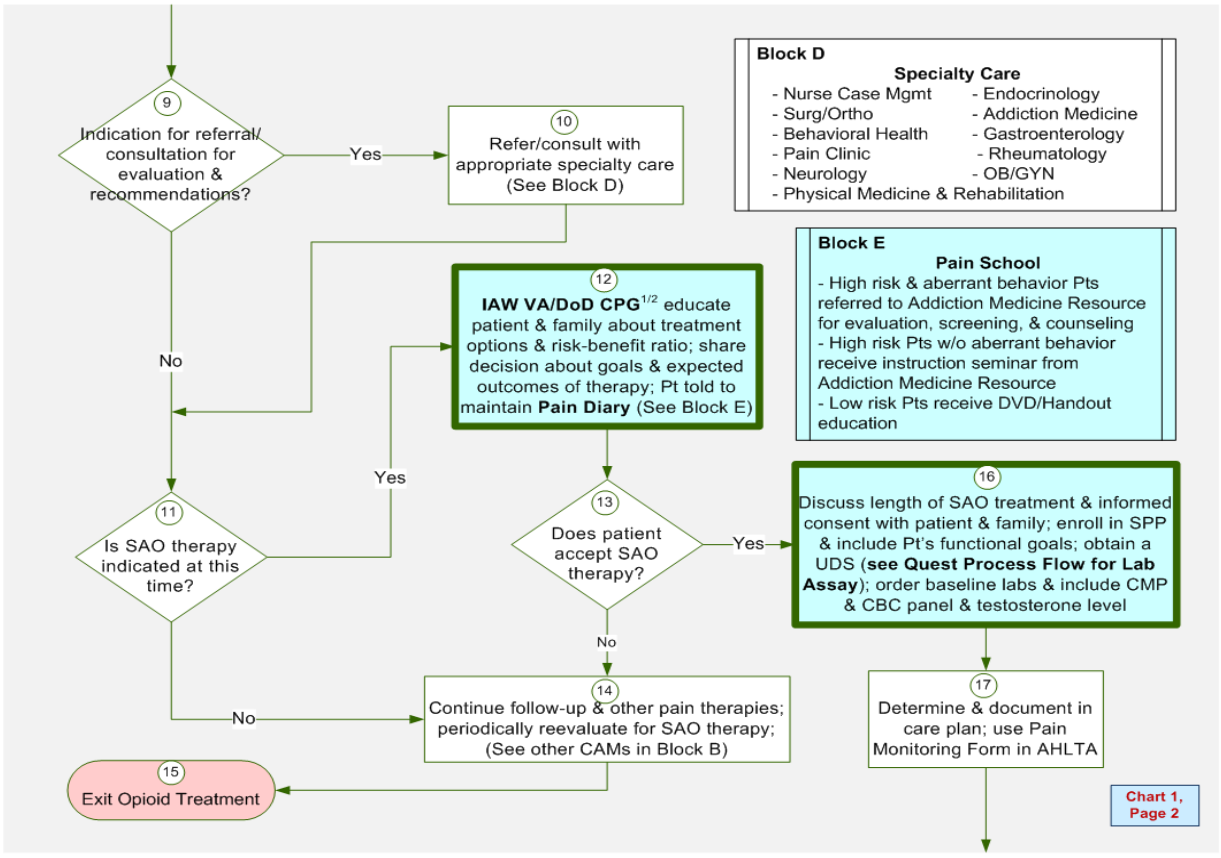
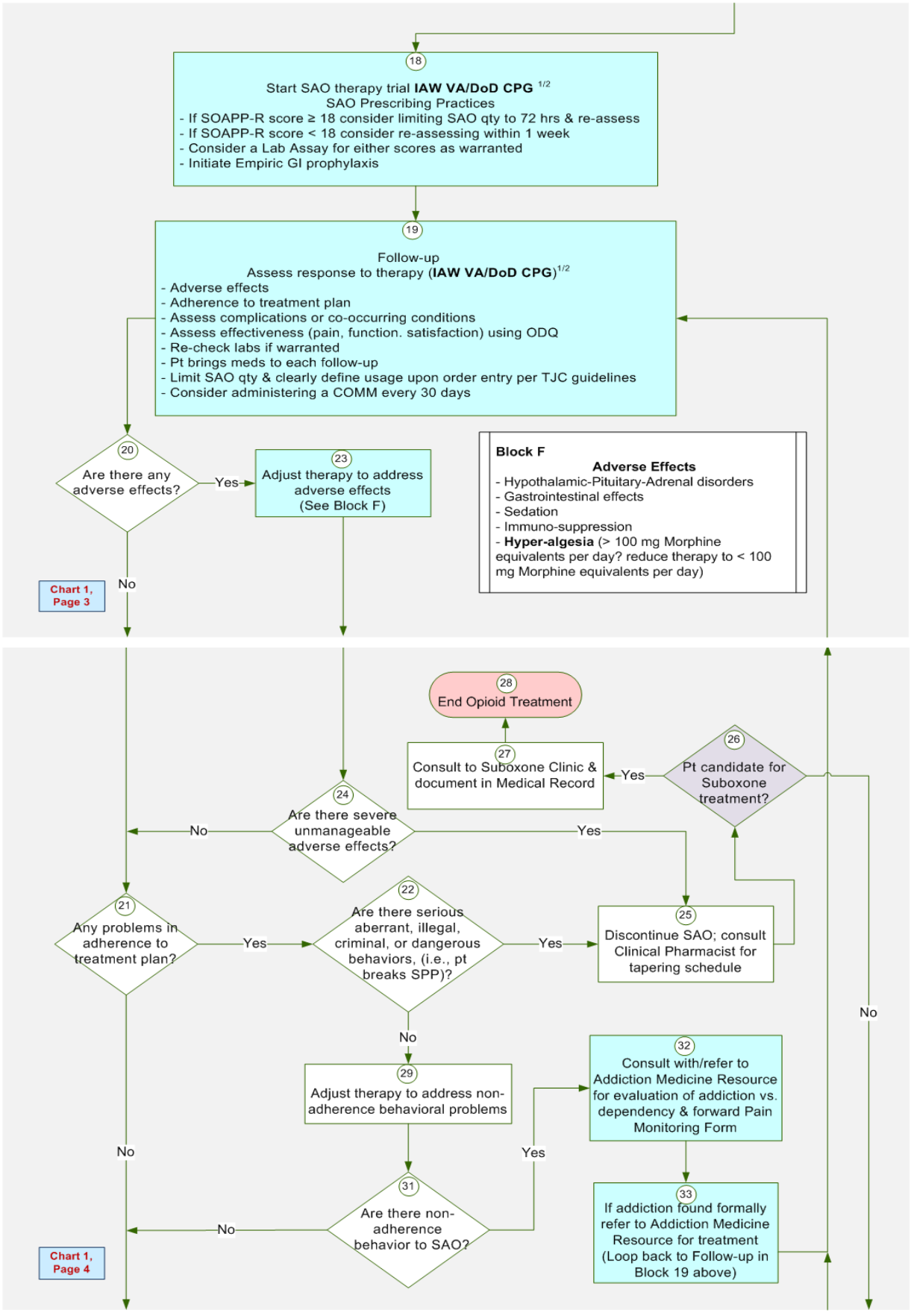
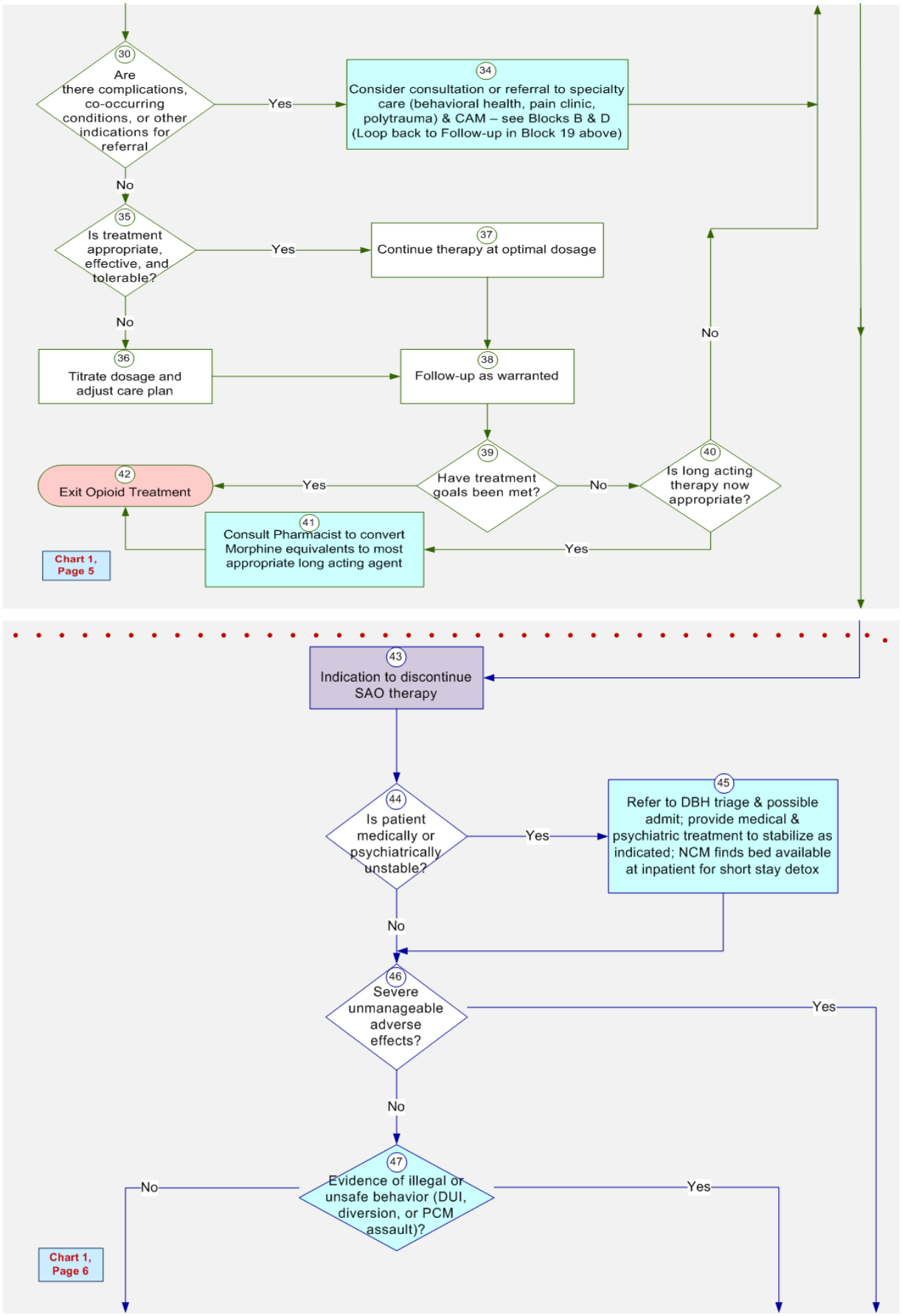


Figure 8: Evans Family Medicine Clinic Baseline ODQ Scores


Our MTF's Treatment Algorithm for Management of Chronic SAO Pain Therapy
1 Start
2 Patient has Chronic Pain (≥ 90 Days)
3 Obtain comprehensive assessment
4 Are other non-opioid medications and modalities indicated?
Yes
5 Implement other modalities and follow-up
No
6 Are there contraindications to opioid therapy that cannot be resolved? (e.g., Suboxone treatment)
Yes
7 Exit Algorithm
8 End Opioid Treatment
No
Chart 1, Page 1
Block A
Comprehensive Assessment
- Pain history & results of previous treatments
- Impact of pain on family, work, life; see Oswestry Disability Questionnaire
- Review of previous diagnostic studies
- Additional consultations & referrals
- Coexisting illnesses, treatments, & effect on pain, e.g., PTSD or TBI
- Significant psychological, social, or behavioral factors that may affect treatment
i.e., a history of abuse or past detox attendance
- Family history of chronic pain
- Collateral or family involvement
- Use of the SOAPP-R for Risk Stratification
Block B
Complementary Alternate Medicine (CAM)
- Physical Therapy
- Acupuncture
- Chiropractic
- Pain Clinic (CPG Medications)
- Hot/Cold Packs
- Relaxation Techniques (Hypnosis, Biofeedback)
- Water Therapy & Massage Therapy
- Wt Loss & Exercise
- Tobacco Cessation
- Transcutaneous Electrical Nerve Stimulation
- Changing Positions/Meditation/Guided Imagery
Block C
Symptom Attributes
- Duration of symptom
- Onset & triggers
- Location/ radiation
- Co-morbidity
- Previous episodes
- Intensity and impact
- Previous treatment & medications
- Patient perception of symptom


9 Indication for referral/ consultation for evaluation & recommendations?
Yes
10 Refer/consult with appropriate specialty care (See Block D)
No
12 IAW VA/DoD CPG[1/2] educate patient & family about treatment options & risk-benefit ratio; share decision about goals & expected outcomes of therapy; Pt told to maintain Pain Diary (See Block E)
11 Is SAO therapy indicated at this time?
Yes
13 Does patient accept SAO therapy?
Yes
16 Discuss length of SAO treatment & informed consent with patient & family; enroll in SPP & include Pt's functional goals; obtain a UDS (see Quest Process Flow for Lab Assay); order baseline labs & include CMP & CBC panel & testosterone level
No
14 Continue follow-up & other pain therapies; periodically reevaluate for SAO therapy; (See other CAMs in Block B)
No
15 Exit Opioid Treatment
17 Determine & document in care plan; use Pain Monitoring Form in AHLTA
Chart 1, Page 2
Block D
Specialty Care
- Nurse Case Mgmt
- Surg/Ortho
- Behavioral Health
- Pain Clinic
- Neurology
- Physical Medicine & Rehabilitation
- Endocrinology
- Addiction Medicine
- Gastroenterology
- Rheumatology
- OB/GYN
Block E
Pain School
- High risk & aberrant behavior Pts referred to Addiction Medicine Resource for evaluation, screening, & counseling
- High risk Pts w/o aberrant behavior receive instruction seminar from Addiction Medicine Resource
- Low risk Pts receive DVD/Handout education


18
Start SAO therapy trial IAW VA/DoD CPG 1/2
SAO Prescribing Practices
- If SOAPP-R score ≥ 18 consider limiting SAO qty to 72 hrs & re-assess
- If SOAPP-R score < 18 consider re-assessing within 1 week
- Consider a Lab Assay for either scores as warranted
- Initiate Empiric GI prophylaxis
19
Follow-up
Assess response to therapy (IAW VA/DoD CPG)1/2
- Adverse effects
- Adherence to treatment plan
- Assess complications or co-occurring conditions
- Assess effectiveness (pain, function. satisfaction) using ODQ
- Re-check labs if warranted
- Pt brings meds to each follow-up
- Limit SAO qty & clearly define usage upon order entry per TJC guidelines
- Consider administering a COMM every 30 days
20
Are there any adverse effects?
Yes
23
Adjust therapy to address adverse effects (See Block F)
No
Chart 1, Page 3
Block F
Adverse Effects
- Hypothalamic-Pituitary-Adrenal disorders
- Gastrointestinal effects
- Sedation
- Immuno-suppression
- Hyper-algesia (> 100 mg Morphine equivalents per day? reduce therapy to < 100 mg Morphine equivalents per day)
28
End Opioid Treatment
27
Consult to Suboxone Clinic & document in Medical Record
Yes
26
Pt candidate for Suboxone treatment?
24
Are there severe unmanageable adverse effects?
No
Yes
21
Any problems in adherence to treatment plan?
Yes
22
Are there serious aberrant, illegal, criminal, or dangerous behaviors, (i.e., pt breaks SPP)?
Yes
25
Discontinue SAO; consult Clinical Pharmacist for tapering schedule
No
No
29
Adjust therapy to address non-adherence behavioral problems
32
Consult with/refer to Addiction Medicine Resource for evaluation of addiction vs. dependency & forward Pain Monitoring Form
No
Yes
31
Are there non-adherence behavior to SAO?
No
33
If addiction found formally refer to Addiction Medicine Resource for treatment (Loop back to Follow-up in Block 19 above)
Chart 1, Page 4


30
Are there complications, co-occurring conditions, or other indications for referral
Yes
34
Consider consultation or referral to specialty care (behavioral health, pain clinic, polytrauma) & CAM – see Blocks B & D (Loop back to Follow-up in Block 19 above)
No
35
Is treatment appropriate, effective, and tolerable?
Yes
37
Continue therapy at optimal dosage
No
36
Titrate dosage and adjust care plan
38
Follow-up as warranted
No
39
Have treatment goals been met?
No
40
Is long acting therapy now appropriate?
Yes
42
Exit Opioid Treatment
Yes
41
Consult Pharmacist to convert Morphine equivalents to most appropriate long acting agent
Yes
Chart 1, Page 5
43
Indication to discontinue SAO therapy
44
Is patient medically or psychiatrically unstable?
Yes
45
Refer to DBH triage & possible admit; provide medical & psychiatric treatment to stabilize as indicated; NCM finds bed available at inpatient for short stay detox
No
46
Severe unmanageable adverse effects?
Yes
No
47
Evidence of illegal or unsafe behavior (DUI, diversion, or PCM assault)?
No
Yes
Chart 1, Page 6

Experience of Care: Short Acting Opiate Reduction Program at Evans Army Hospital